Monthly water situation report: Wessex Area

1 Summary - June 2024

In June there was considerably less rainfall across Wessex making it the driest June in 6 years and the driest month since February 2023. An average of 21mm of rain fell across Wessex, 35% of the long term average (LTA). Although June was a drier month, it remained the second wettest 6 months, and the wettest 12 month period since records began in 1871. Soil Moisture Deficit (SMD) increased in June with the majority of areas reporting between 41-70mm. The majority of monthly mean flows across the north of Wessex were normal, with sites to the south of Wessex reporting above normal and notably high flows. The groundwater sites across Wessex all reported normal or higher levels in June, with the sites monitoring the chalk aquifer reporting above notably high levels to the south of Wessex, and the northern Wessex sites reporting as above normal. Throughout June, reservoir levels decreased with Wessex Water ending the month at approximately 89% capacity and Bristol Water ending June at approximately 86% capacity.

1.1 Rainfall

An average of 21mm of rain fell across Wessex in June (35% of the LTA) with 77% of the monthly total rainfall, falling on just three days, June 15 to 18. The low levels of rainfall made it the 16th driest June since our records began in 1871. Most hydrological areas across Wessex received notably low levels of rainfall in June, with a few areas to the northeast of Wessex receiving slighter higher amounts of rainfall and recording as below normal, while one area to the east of Wessex received the least rainfall with levels recorded as exceptionally low. The longer-term outlook shows a different picture, with the past three months recording majority normal levels, with a few above normal levels recorded in the south of the patch, while the past 6 and 12 month recorded exceptionally high rainfall across all hydrological areas. Despite the drier weather in May, the heavy rainfall in the previous months makes it the eighth wettest 3-month period (March to June), the second wettest 6-month period (December to June) and the wettest 12-month period (June to June) since records began in 1871.

Rainfall ranged from 15% to 54% of LTA for the month with the highest levels of rainfall being recorded as 34mm at Grove Farm rain gauge in the Bristol Avon Tributaries catchment. The lowest levels of total monthly rainfall being recorded as 8mm at the Winterbourne Stoke rain gauge, within the Hampshire Avon catchment.

1.2 Soil moisture

The majority of areas across Wessex recorded a range of 41-70mm, with areas to the south east of the patch recording 71-100mm, and a very small area at the most western point of Wessex recorded 11-40mm. The southern and eastern hydrological areas were recording a

SMD between 6-25% above the LTA, the north western hydrological areas recorded a SMD of 6-25% lower than the LTA with central areas recording a SMD range of 5% below to 5% above the LTA.

1.3 River flows

The majority of sites to the north and west of Wessex reported normal flows in June 2024, with the exception of Frenchay, on the Bristol Frome, which recorded below normal flows. The sites within the chalk aquifer reported above normal and notably high flows, the remainder of sites in the south of Wessex also recorded above normal and notably high flows.

Across Wessex all sites were recording lower flows at the end of June in comparison to the end of May, and at the end of the month most daily mean flows were decreasing following the little precipitation the area received over the month.

1.4 Groundwater levels

The groundwater levels varied across Wessex in June from normal to exceptionally high. Didmarton 1 (monitoring the Inferior Oolite formation) recording the exceptionally high levels, and Oakley Industrial Estate monitoring the Chalk recording normal levels. Amongst the sites monitoring the Chalk aquifer, the most southern two sites Kingston Russell Road and Delcombe recorded notably high levels, whereas the more northern sites, Tilshead, Chitternedown and Woodyates, all recorded above normal levels.

1.5 Reservoir stocks

Reservoir levels in Wessex decreased over the month of June, with Wessex Water reporting reservoirs at approximately 89% capacity by the end of the month, which is similar to this time last year. Bristol Water reported reservoirs levels at approximately 86% capacity by the end of June, which is also similar to this time last year.

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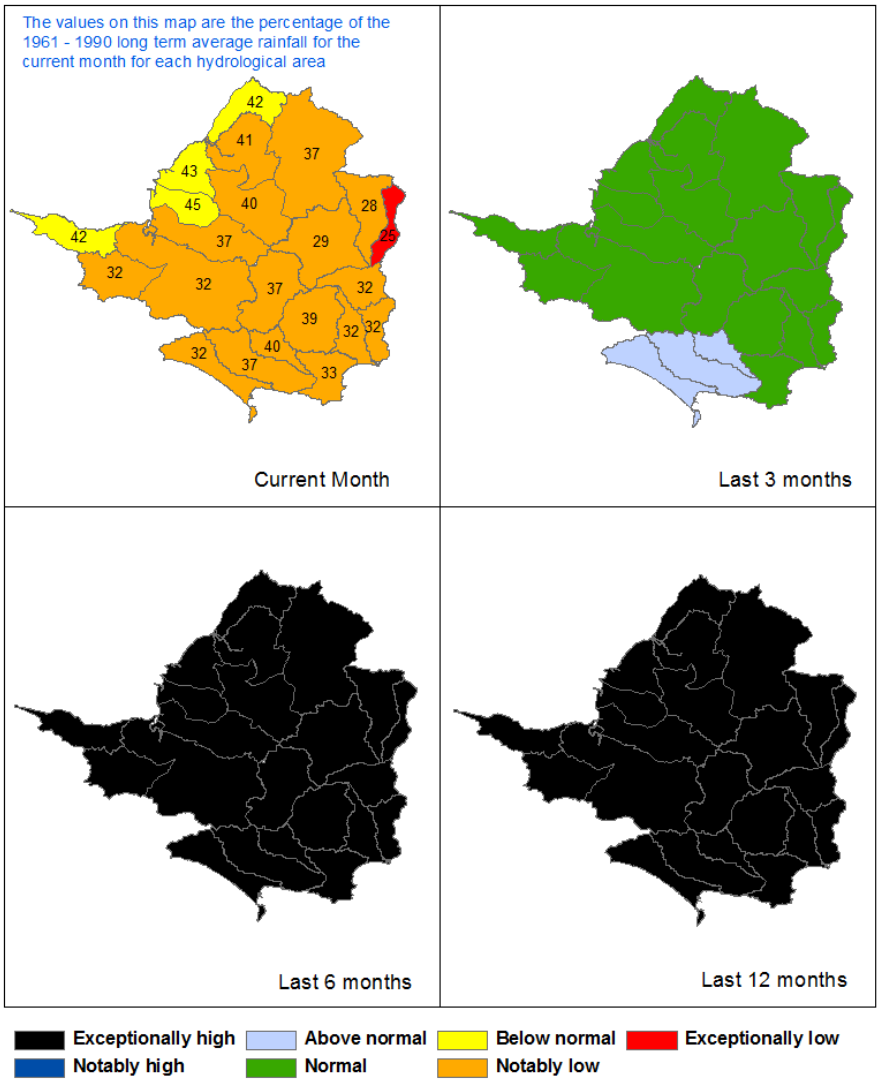
2 Rainfall

2.1 Rainfall map

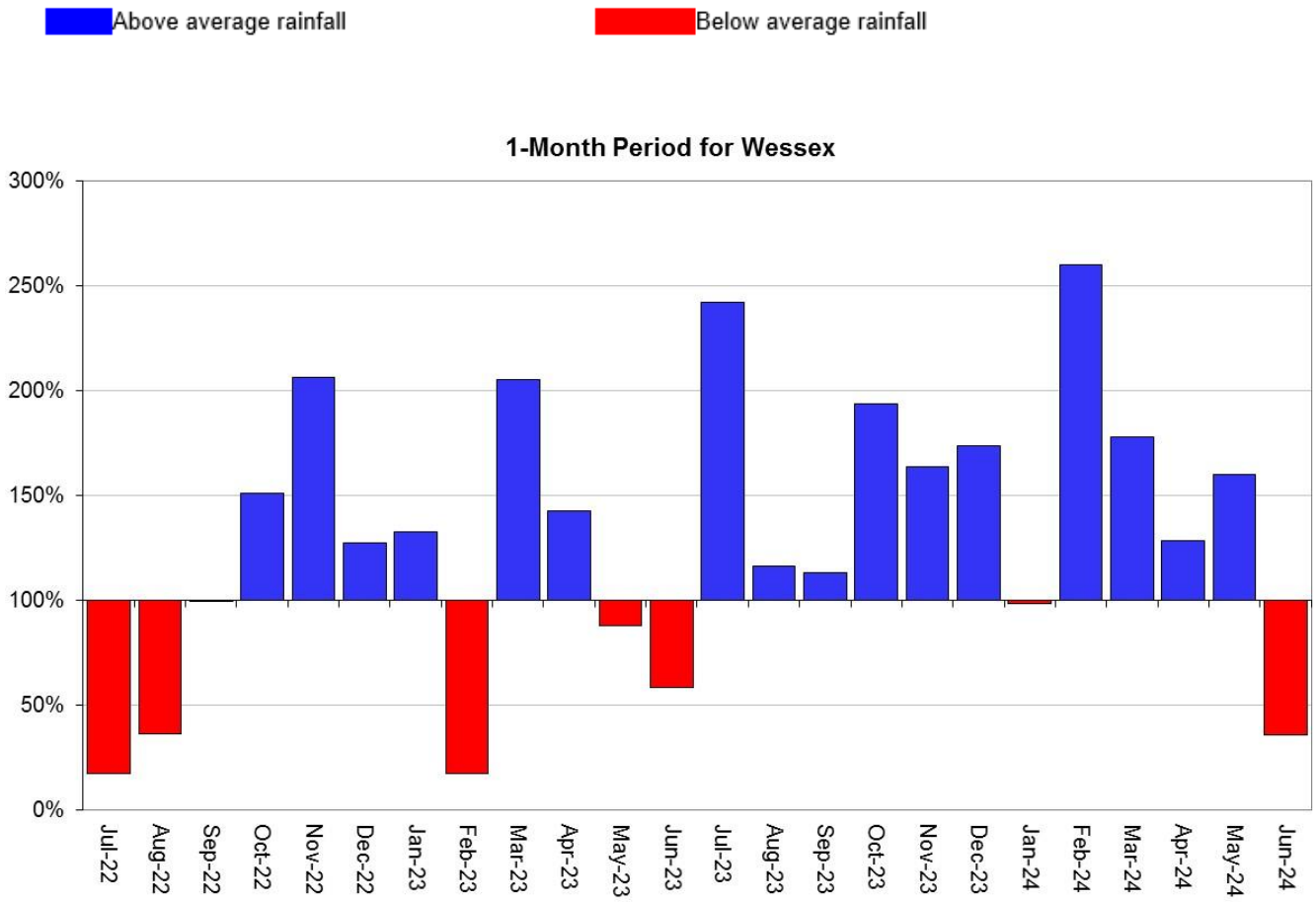
Figure 2.1: Total rainfall for hydrological areas for the current month (up to 30 June 2024), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.



Rainfall data for 2023, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Known data issues at the Compton Abbas Airfield rain gauge, use with caution (Source: Environment Agency. Crown Copyright, 100024198, 2024). Rainfall data prior to 2023, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2024).

2.2 Rainfall charts

Figure 2.2: Monthly rainfall totals for the past 24 months as a percentage of the 1961 to 1990 long term average for each region and for England.

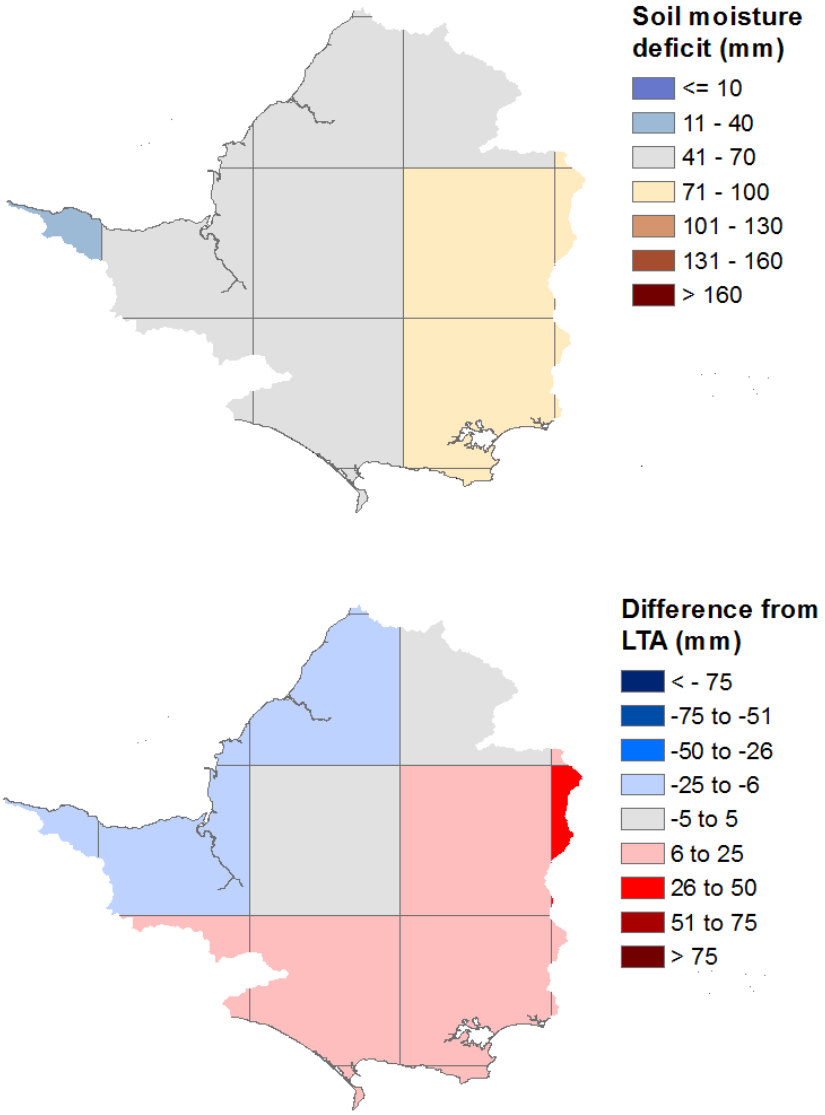


Rainfall data for 2023, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2024). Rainfall data prior to 2023, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2024).

3 Soil moisture deficit

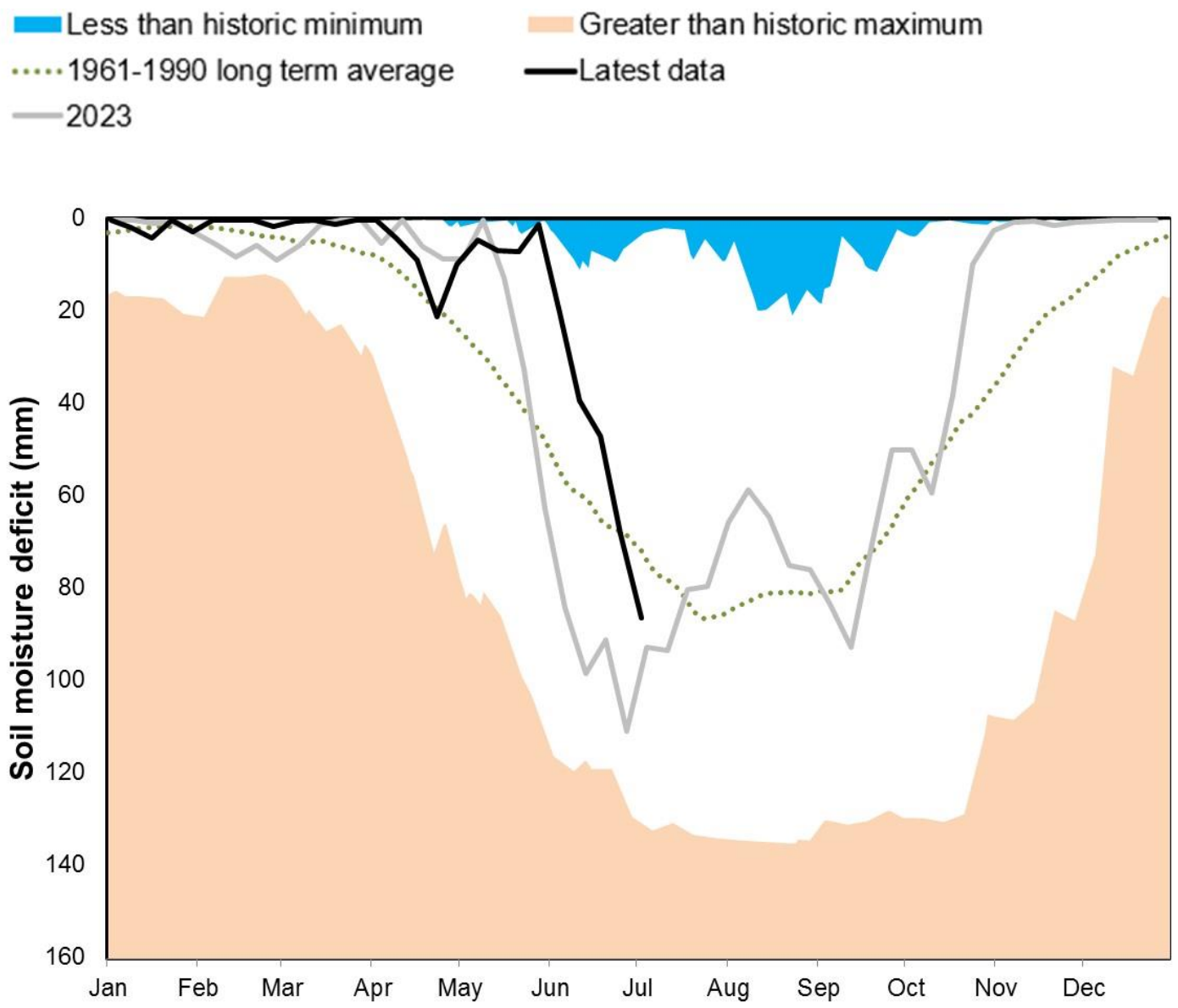
3.1 Soil moisture deficit map

Figure 3.1: Soil moisture deficits for weeks ending 30 June 2024. Shows the difference (mm) of the actual soil moisture deficit from the 1961 to 1990 long term average soil moisture deficits. MORECS data for real land use.



3.2 Soil moisture deficit charts

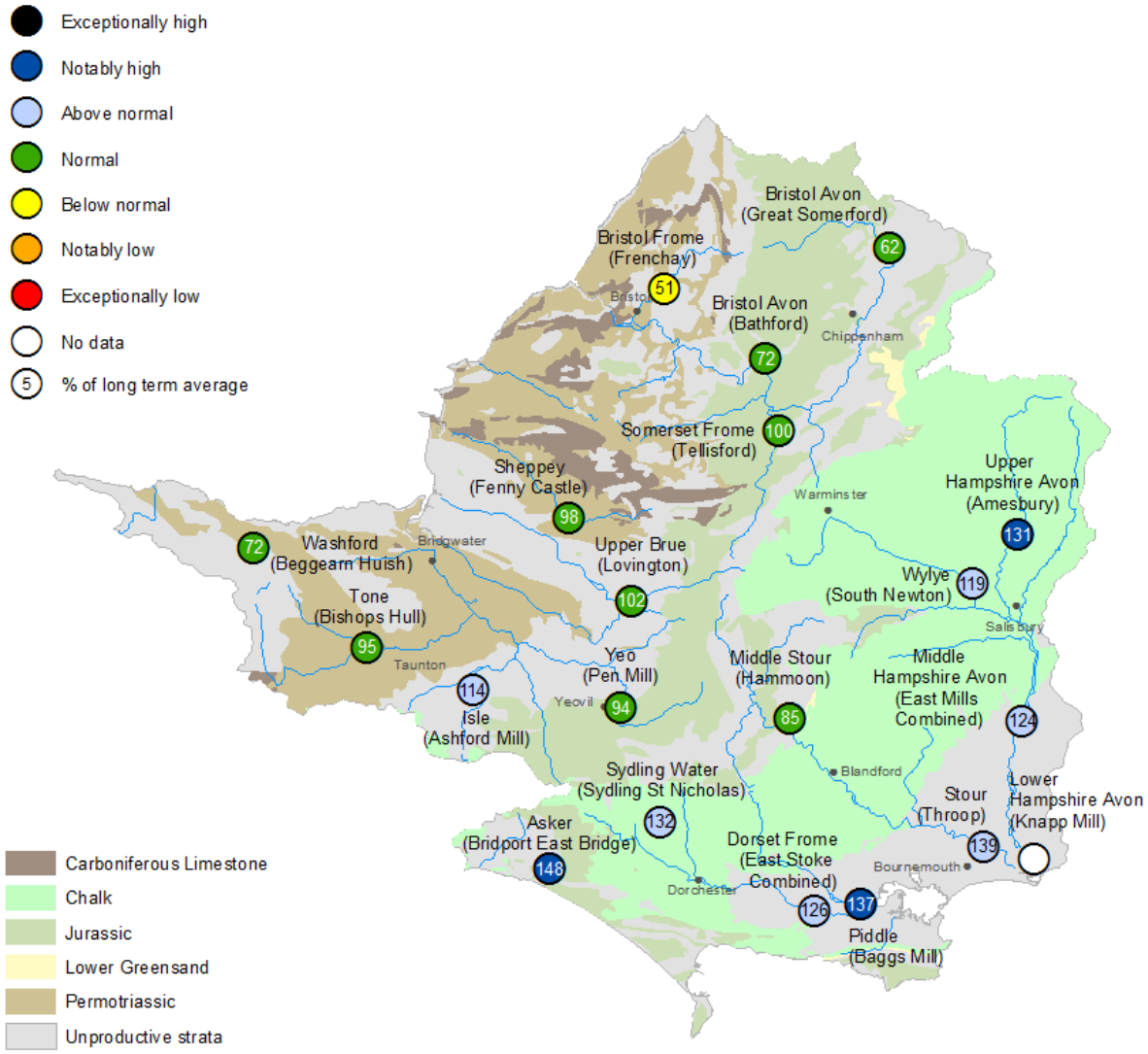
Figure 3.2: Latest soil moisture deficit compared to previous year, maximum, minimum, and 1961 to 1990 long term average. Weekly MORECS data for real land use.



4 River flows

4.1 River flows map

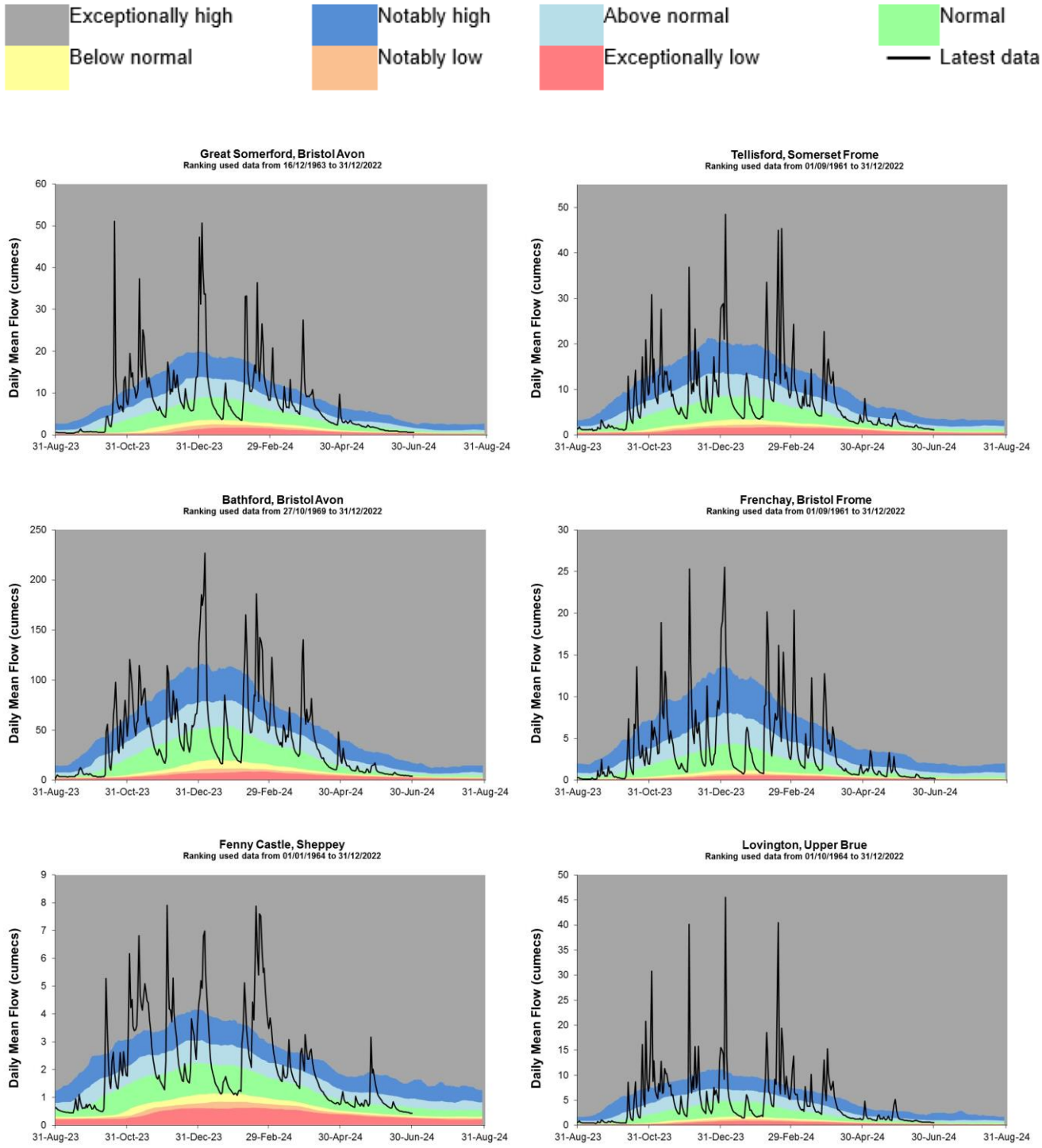
Figure 4.1: Monthly mean river flow for indicator sites for June 2024, expressed as a percentage of the respective long term average and classed relative to an analysis of historic June monthly means Table available in the appendices with detailed information.



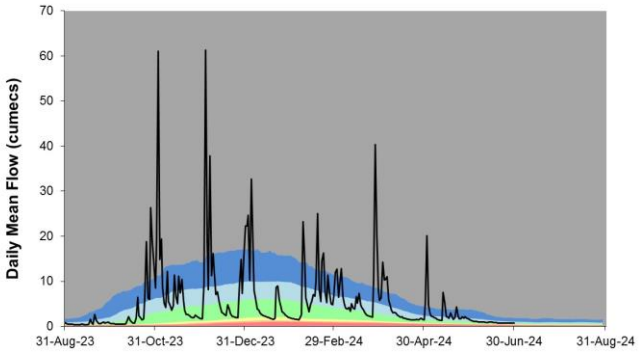
(Source: Environment Agency). Knapp Mill on the Lower Hampshire Avon has been omitted due to ongoing data issues. There are known data issues at Throop on the Stour due to debris on the weir, use with caution.

4.2 River flow charts

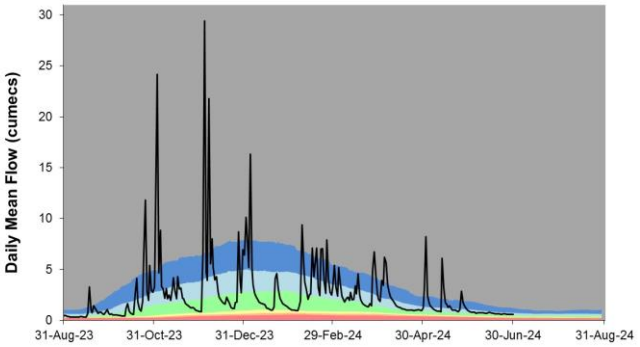
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows.



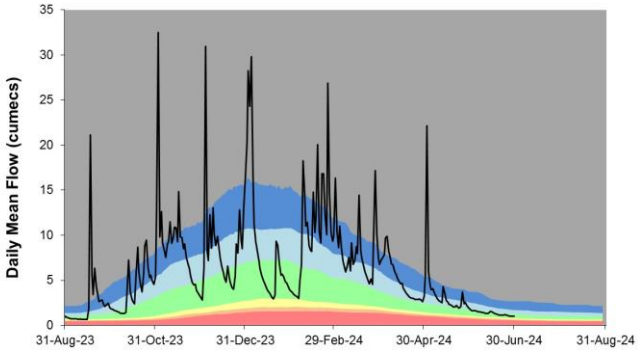
Pen Mill, Somerset Yeo
Ranking used data from 31/10/1963 to 31/12/2022



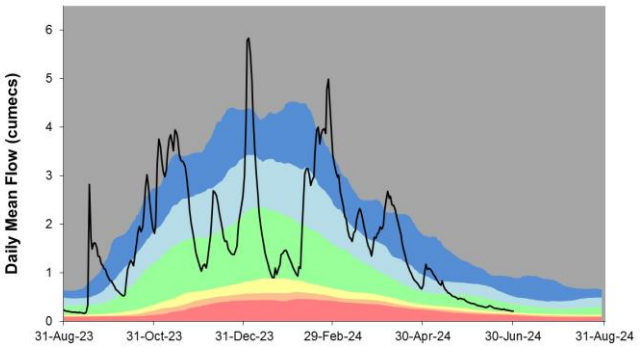
Ashford Mill, River Isle
Ranking used data from 01/10/1962 to 31/12/2022



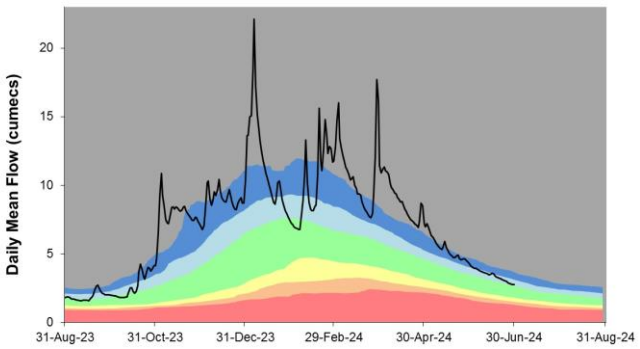
Bishops Hull, River Tone
Ranking used data from 01/02/1961 to 31/12/2022



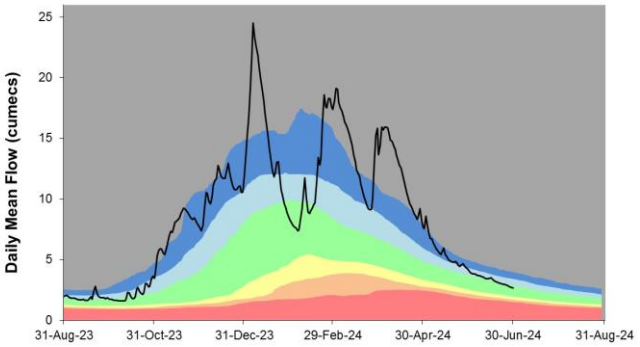
Beggearn Huish, Washford River
Ranking used data from 01/01/1967 to 31/12/2022



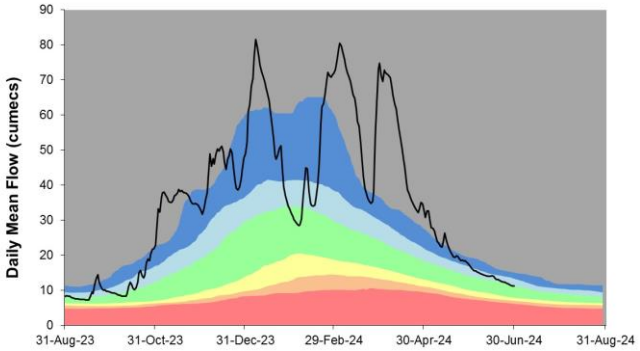
Amesbury, Upper Hampshire Avon
Ranking used data from 01/02/1965 to 31/12/2022



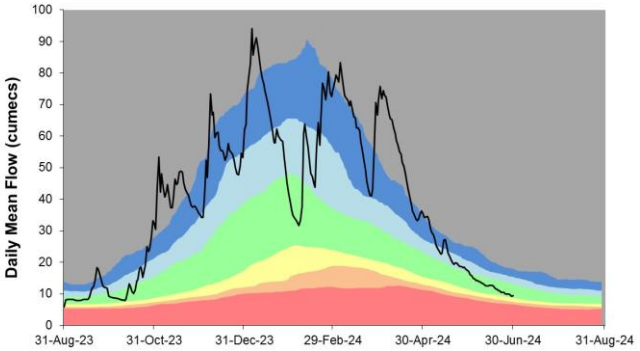
South Newton, River Wylye
Ranking used data from 01/01/1967 to 31/12/2022

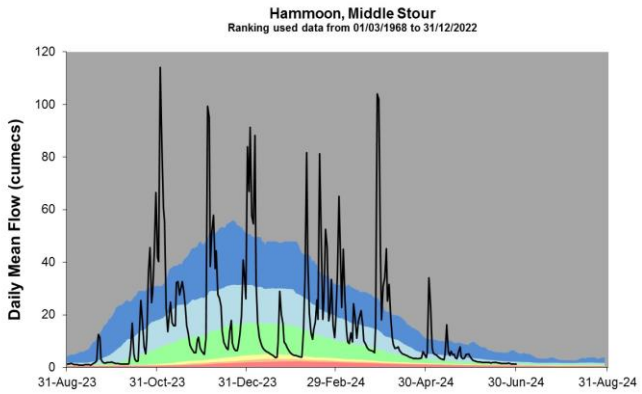


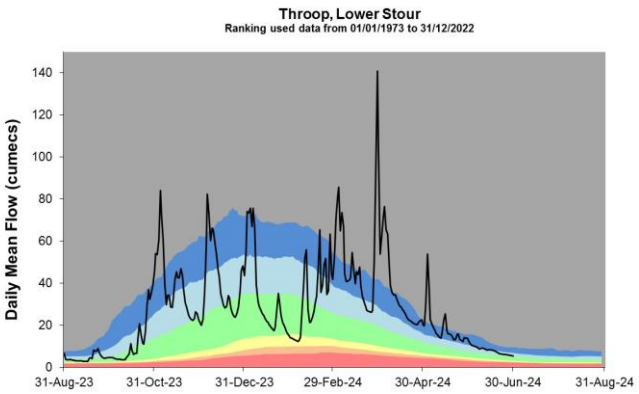
East Mills Combined, Middle Hampshire Avon
Ranking used data from 01/11/1965 to 31/12/2022

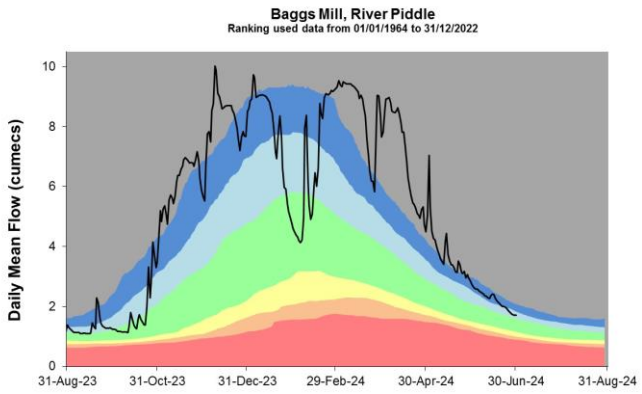


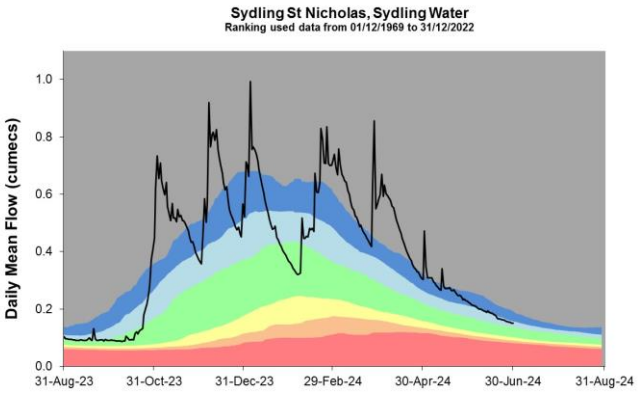
Knapp Mill, Upper Hampshire Avon
Ranking used data from 01/01/1975 to 31/12/2022

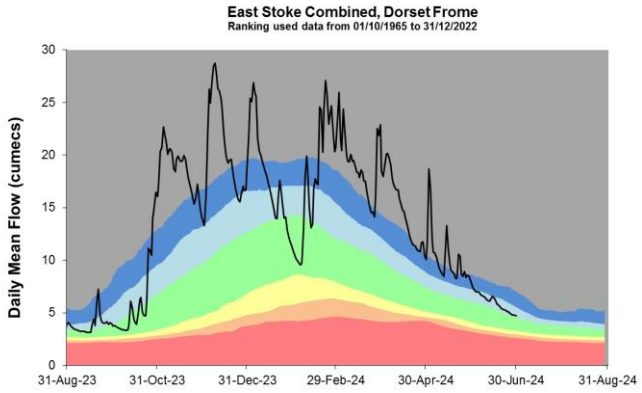


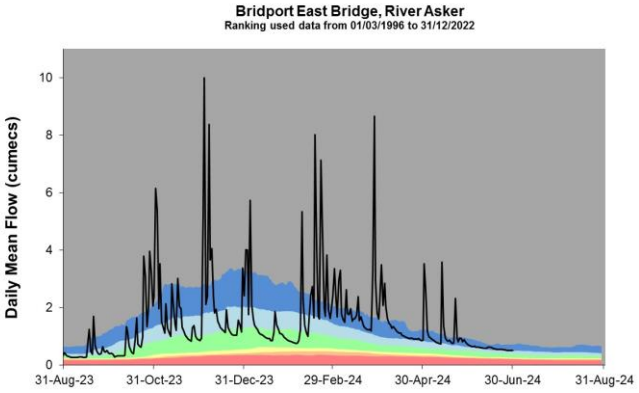










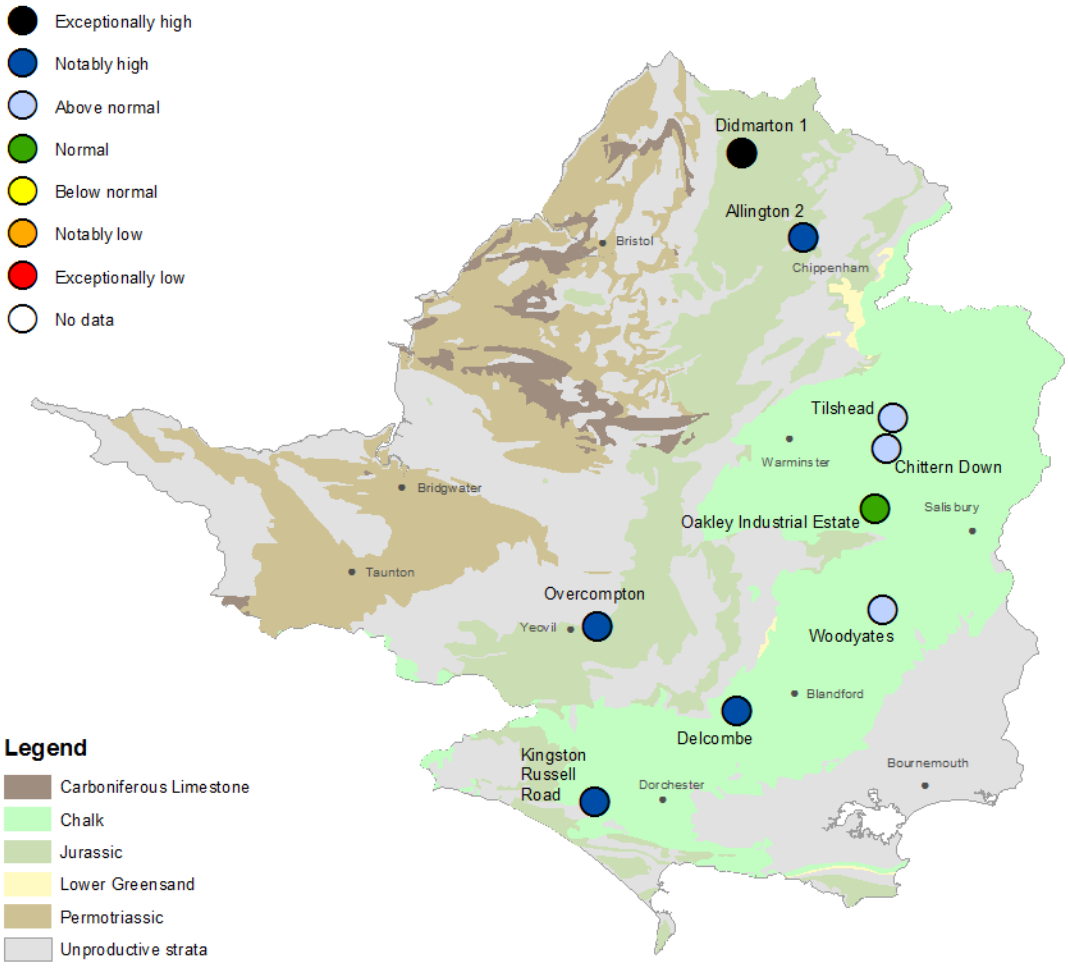


Source: Environment Agency, 2024.

5 Groundwater levels

5.1 Groundwater levels map

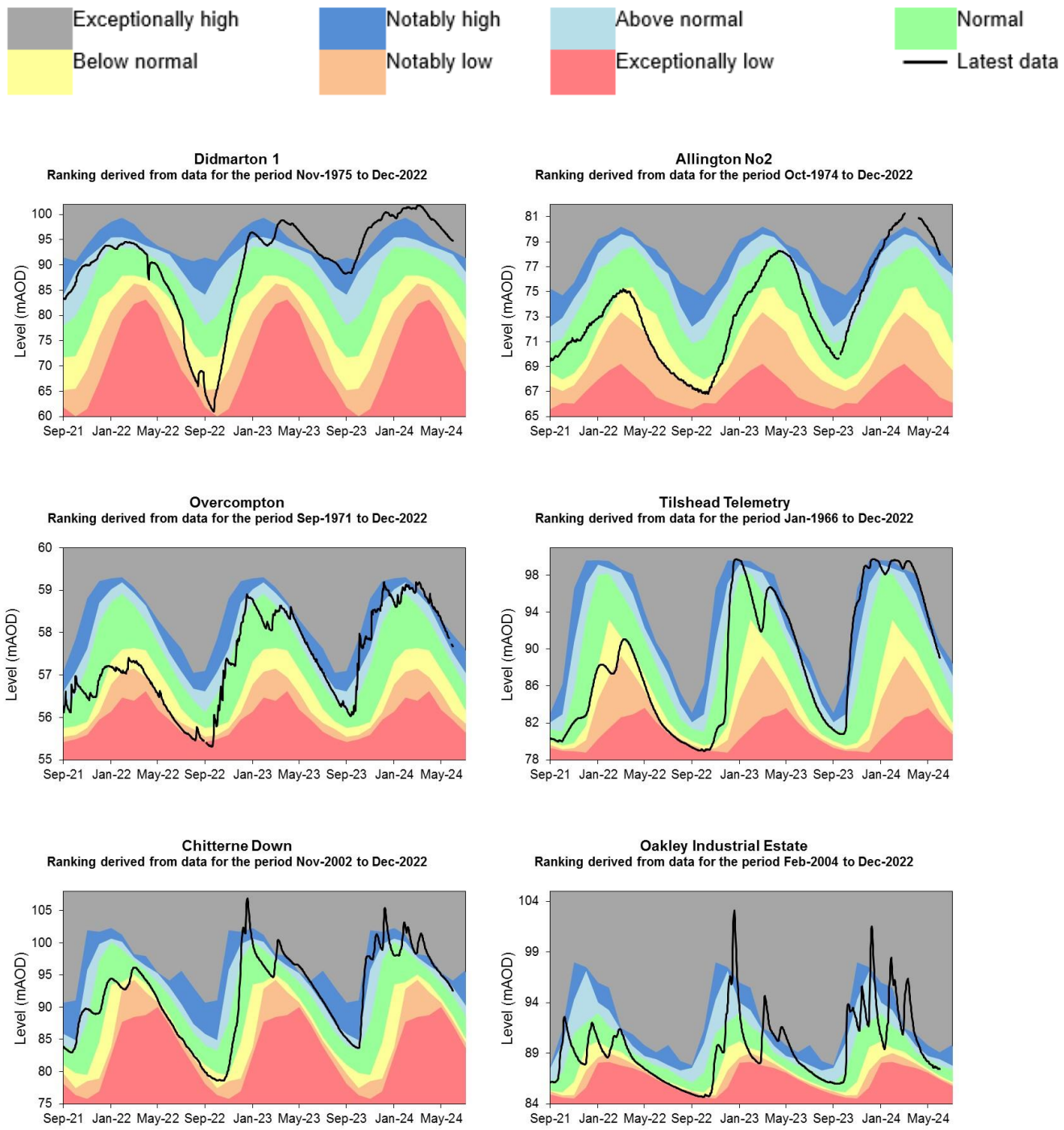
Figure 5.1: Groundwater levels for indicator sites at the end of June 2024, classed relative to an analysis of respective historic June levels. Table available in the appendices with detailed information.

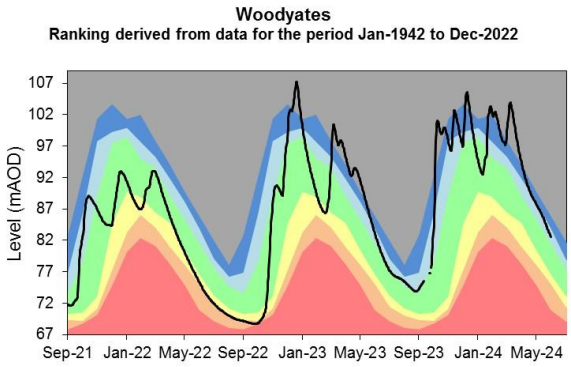


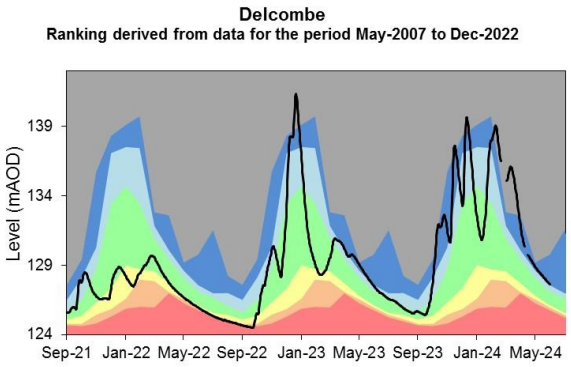
(Source: Environment Agency). Known data issues at Overcompton with missing data from June 20th to 27th, Oakley Industrial Estate has developed a diurnal trend, use data with caution. Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2024.

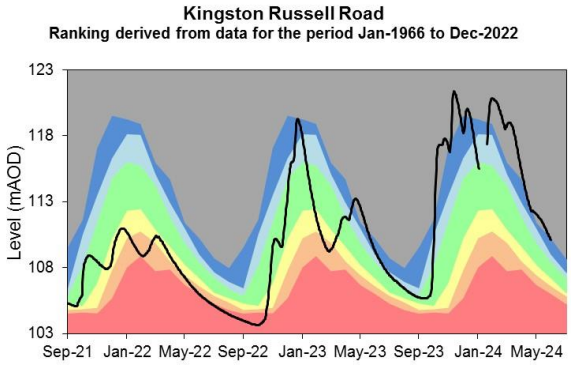
5.2 Groundwater level charts

Figure 5.2: End of month groundwater levels at index groundwater level sites for major aquifers. 34 months compared to an analysis of historic end of month levels.





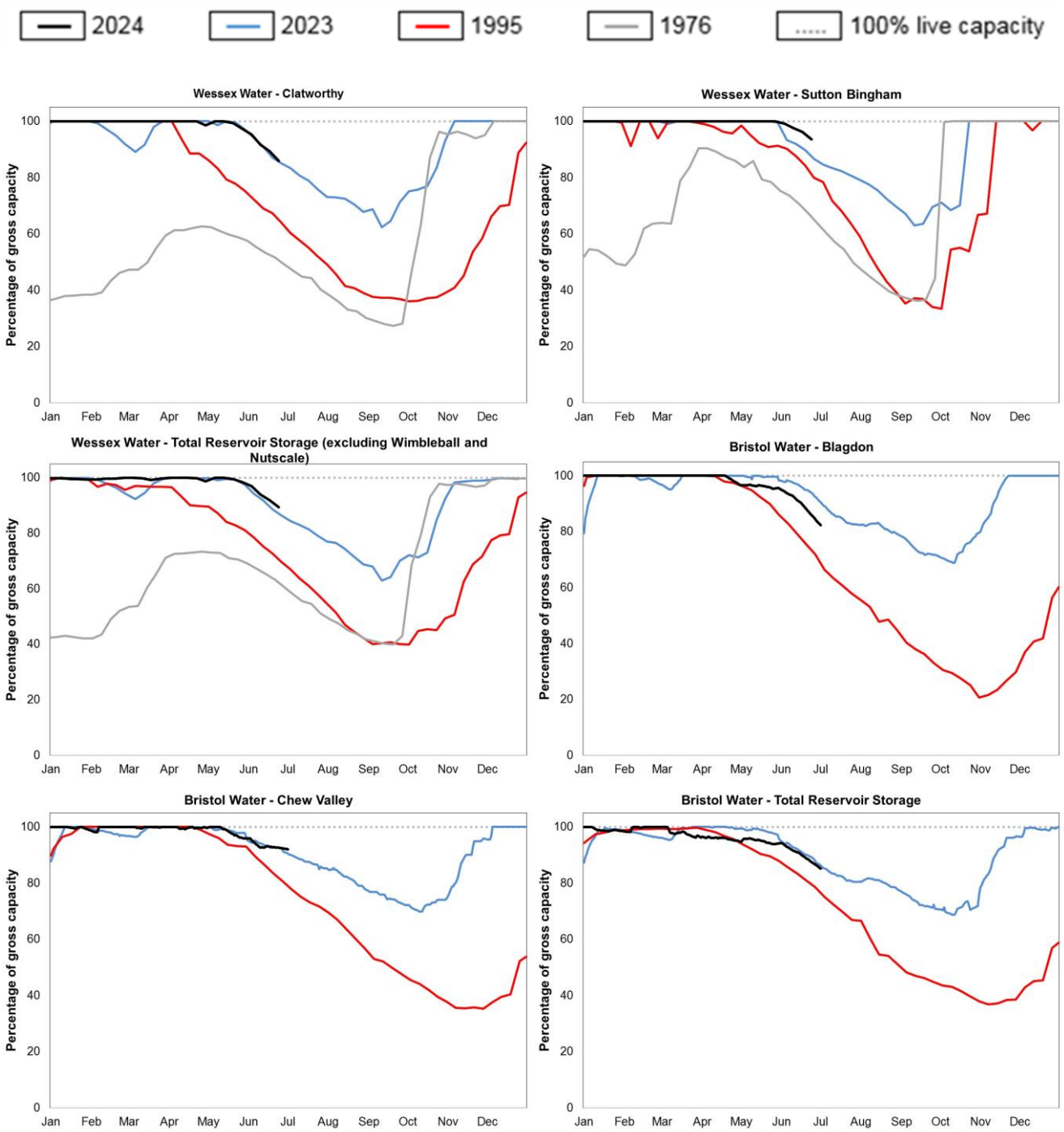




Source: Environment Agency, 2024.

6 Reservoir stocks

Figure 6.1: End of month regional reservoir stocks compared to the previous year, and if available, also a comparison to reservoir stocks in 1995 and 1976.



(Source: Wessex Water and Bristol Water).

7 Flood alerts and warnings

7.1 Flood alerts

Table 1: Fluvial, coastal and groundwater flood alerts issued during June

Area	Number of fluvial flood alerts in June	Number of coastal flood alerts in June	Number of groundwater flood alerts in June
North Wessex	0	0	0
South Wessex	0	0	0

7.2 Flood warnings

Table 2: Fluvial, coastal and groundwater flood warnings issued during June

Area	Number of fluvial flood warnings in June	Number of coastal flood warnings in June	Number of groundwater flood warnings in June
North Wessex	0	0	0
South Wessex	0	0	0

7.3 Severe flood warnings

Table 3: Fluvial, coastal and groundwater severe flood warnings issued during June

Area	Number of fluvial severe flood warnings in June	Number of coastal severe flood warnings in June	Number of groundwater severe flood warnings in June
North Wessex	0	0	0
South Wessex	0	0	0

8 Stream support

8.1 Sites providing stream support

Table 4: End of June status for stream support sites.

Catchment	River	Stream support site	Gauging station	End of June status
Bristol Avon	Chalfield Brook	South Wraxall	Great Chalfield (Wessex Water)	On
Bristol Avon	Chalfield Brook	Little Chalfield	Great Chalfield (Wessex Water)	Off
Bristol Avon	Charlton Stream	Charlton	Crabb Mill	Off
Bristol Avon	Gauze Brooke	Hullavington	Rodbourne	Off
Bristol Avon	Horscombe Stream	Tucking Mill	No Gauge	Off
Bristol Avon	Luckington Brook	Luckington	Fossway	Off
Bristol Avon	Rodbourne Brook	Lower Stanton St. Quinton	Startley	On
Bristol Avon	Semington Brook	Easterton	No Gauge	Off
Bristol Avon	Sherston Avon	Stanbridge	Fossway	Off
Bristol Avon	Tetbury Avon	Tetbury	Brokenborough	Off
Dorset Frome	South Winterbourne	Winterbourne Abbas	Winterbourne Steepleton	Off

Dorset Frome	Watergates Stream	Watergates	No Gauge	On
Piddle	Devil’s Brook	Dewlish	Dewlish Woodsdown Cross	Off
Piddle	Piddle	Alton Mill	South House & Little Puddle	Off
Piddle	Piddle	Morningwell	South House & Little Puddle	Off
Piddle	Piddle	Briantspuddle	Briantspuddle	Off
Dorset Stour	Crichel Stream	Long Crichel	No Gauge	Off
Dorset Stour	Gussage Stream	Gussage All Saints	Bowerswain	Off
Dorset Stour	Allen	Wyke Down	All Hallows	Off
Dorset Stour	Pimperne Stream	Pimperne	No Gauge	Off
Hampshire Avon	Bourne	Porton	Salisbury Bourne	On
Hampshire Avon	Chitterne Brook	Codford Road	Codford	Off
Hampshire Avon	Wylye	Brixton Deverill	Brixton Deverill & Heytesbury	Off
Hampshire Avon	Wylye	Kingston Deverill	Brixton Deverill & Heytesbury	Off

9 Abstraction licences subject to restrict or cease

9.1 Abstraction licences subject to restrict or cease

Table 5: Number of licences at restrict or cease at the end of June.

Catchment	Number of licences at restrict at the end of June	Number of licences at cease at the end of June
Bristol Avon	0	0
Dorset	0	0
Hampshire Avon	0	4
Somerset	0	2

10 Glossary

10.1 Terminology

Aquifer

A geological formation able to store and transmit water.

Areal average rainfall

The estimated average depth of rainfall over a defined area. Expressed in depth of water (mm).

Artesian

The condition where the groundwater level is above ground surface but is prevented from rising to this level by an overlying continuous low permeability layer, such as clay.

Artesian borehole

Borehole where the level of groundwater is above the top of the borehole and groundwater flows out of the borehole when unsealed.

Cumecs

Cubic metres per second (m^{3s-1}).

Effective rainfall

The rainfall available to percolate into the soil or produce river flow. Expressed in depth of water (mm).

Flood alert and flood warning

Three levels of warnings may be issued by the Environment Agency. Flood alerts indicate flooding is possible. Flood warnings indicate flooding is expected. Severe flood warnings indicate severe flooding.

Groundwater

The water found in an aquifer.

Long term average (LTA)

The arithmetic mean calculated from the historic record, usually based on the period 1961 to 1990. However, the period used may vary by parameter being reported on (see figure captions for details).

mAOD

Metres above ordnance datum (mean sea level at Newlyn Cornwall).

MORECS

Met Office Rainfall and Evaporation Calculation System. Met Office service providing real time calculation of evapotranspiration, soil moisture deficit and effective rainfall on a 40 by 40 km grid.

Naturalised flow

River flow with the impacts of artificial influences removed. Artificial influences may include abstractions, discharges, transfers, augmentation and impoundments.

NCIC

National Climate Information Centre. NCIC area monthly rainfall totals are derived using the Met Office 5 km gridded dataset, which uses rain gauge observations.

Recharge

The process of increasing the water stored in the saturated zone of an aquifer. Expressed in depth of water (mm).

Reservoir gross capacity

The total capacity of a reservoir.

Reservoir live capacity

The capacity of the reservoir that is normally usable for storage to meet established reservoir operating requirements. This excludes any capacity not available for use (for example, storage held back for emergency services, operating agreements or physical restrictions). May also be referred to as ‘net’ or ‘deployable’ capacity.

Soil moisture deficit (SMD)

The difference between the amount of water actually in the soil and the amount of water the soil can hold. Expressed in depth of water (mm).

10.2 Categories

Exceptionally high

Value likely to fall within this band 5% of the time.

Notably high

Value likely to fall within this band 8% of the time.

Above normal

Value likely to fall within this band 15% of the time.

Normal

Value likely to fall within this band 44% of the time.

Below normal

Value likely to fall within this band 15% of the time.

Notably low

Value likely to fall within this band 8% of the time.

Exceptionally low

Value likely to fall within this band 5% of the time.

10.3 Rainfall Areas Map

Figure 6.2 Rainfall catchments in Wessex.

11 Appendices

11.1 Rainfall table

Hydrological area	Jun 2024 rainfall % of long term average 1961 to 1990	Jun 2024 band	Apr 2024 to June cumulative band	Jan 2024 to June cumulative band	Jul 2023 to June cumulative band
Axe	45	Below Normal	Normal	Exceptionally high	Exceptionally high
Brue	37	Notably Low	Normal	Exceptionally high	Exceptionally high
Little Avon	42	Below Normal	Normal	Exceptionally high	Exceptionally high
Lower Bristol Avon And Bristol Frome	41	Notably Low	Normal	Exceptionally high	Exceptionally high
Lower Dorset Stour And River Crane	32	Notably Low	Normal	Exceptionally high	Exceptionally high
Lower Hampshire Avon	32	Notably Low	Normal	Exceptionally high	Exceptionally high
Mendips And River Chew	40	Notably Low	Normal	Exceptionally high	Exceptionally high
Middle And Upper Bristol Avon	37	Notably Low	Normal	Exceptionally high	Exceptionally high

Middle Dorset Stour	39	Notably Low	Normal	Exceptionally high	Exceptionally high
Middle Hampshire Avon	32	Notably Low	Normal	Exceptionally high	Exceptionally high
Parrett	32	Notably Low	Normal	Exceptionally high	Exceptionally high
Poole Harbour And Purbeck	33	Notably Low	Normal	Exceptionally high	Exceptionally high
River Bourne	25	Exceptionally Low	Normal	Exceptionally high	Exceptionally high
River Frome	37	Notably Low	Above normal	Exceptionally high	Exceptionally high
River Piddle	40	Notably Low	Above normal	Exceptionally high	Exceptionally high
Tone	32	Notably Low	Normal	Exceptionally high	Exceptionally high
Upper Dorset Stour	37	Notably Low	Normal	Exceptionally high	Exceptionally high
Upper Hampshire Avon	28	Notably Low	Normal	Exceptionally high	Exceptionally high
West Dorset Streams	32	Notably Low	Above normal	Exceptionally high	Exceptionally high

West Somerset Streams	42	Below Normal	Normal	Exceptionally high	Exceptionally high
Wylye And Nadder	29	Notably Low	Normal	Exceptionally high	Exceptionally high
Yeo And Kenn	43	Below Normal	Normal	Exceptionally high	Exceptionally high

11.2 River flows table

Site name	River	Catchment	Jun 2024 band	May 2024 band
Amesbury	Upper Hampshire Avon	Hampshire Avon	Notably high	Exceptionally high
Ashford Mill	Isle	Parrett	Above normal	Exceptionally high
Baggs Mill	Piddle	Piddle	Notably high	Exceptionally high
Bathford	Bristol Avon	Bristol Avon	Normal	Normal
Beggearn Huish	Washford	Washford River	Normal	Above normal
Bishops Hull	Tone	Tone	Normal	Exceptionally high
Bridport East Bridge	Asker	Asker	Notably high	Exceptionally high
Fenny Castle	Sheppey	Brue	Normal	Above normal
East Mills Combined	Middle Hampshire Avon	Hampshire Avon	Above normal	Exceptionally high
East Stoke Combined	Dorset Frome	Dorset Frome	Above normal	Exceptionally high
Frenchay	Bristol Frome	Bristol Frome	Below normal	Normal

Great Somerford	Bristol Avon	Bristol Avon	Normal	Normal
Hammoon	Middle Stour	Dorset Stour	Normal	Notably high
Knapp Mill	Lower Hampshire Avon	Hampshire Avon	Normal	Notably high
Lovington	Upper Brue	Brue	Normal	Above normal
Pen Mill	Yeo	Parrett	Normal	Notably high
South Newton	River Wylye	Hampshire Avon	Above normal	Notably high
Sydling St Nicholas	Sydling Water	Dorset Frome	Above normal	Exceptionally high
Tellisford	Somerset Frome	Bristol Avon	Normal	Above normal
Throop	Lower Stour	Dorset Stour	Above normal	Exceptionally high

11.3 Groundwater table

Site name	Aquifer	End of Jun 2024 band	End of May 2024 band
Allington No2	Upper Bristol Avon Great Oolite	Notably high	Exceptionally high
Chitterne Down	Upper Hampshire Avon Chalk	Above normal	Above normal
Delcombe	Dorset Frome And Piddle Chalk/upper Greensand	Notably high	Notably high
Didmarton 1	Upper Bristol Avon Inferior Oolite	Exceptionally high	Exceptionally high
Kingston Russell Road	Dorset Frome Chalk	Notably high	Exceptionally high
Overcompton	Somerset Yeo Bridport Sand	Notably high	Exceptionally high
Tilshead	Upper Hampshire Avon Chalk	Above normal	Notably high
Woodyates	Dorset Stour Chalk	Above normal	Above normal
Oakley Industrial Estate	Upper Hampshire Avon Chalk	Normal	Normal